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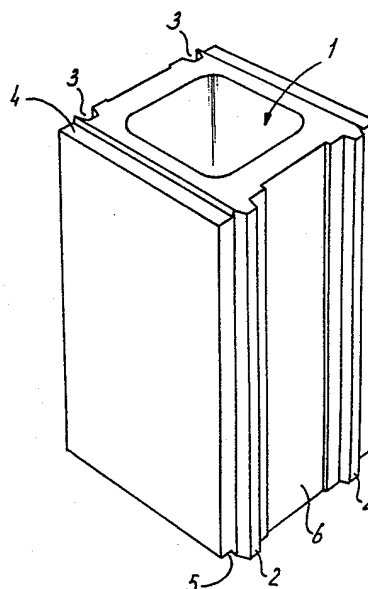
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54 **Method for manufacturing a wall by stacking plaster blocks, and plaster block for use with such method.**

57 To be able to make a house separating supporting and sound insulating wall from plaster blocks having an open channel, these blocks are stacked in a staggering way so that the channel are in communication with each other; concrete mortar is poured in the system of channels; by the hardening of the concrete a skeleton is formed extending over the entire wall.



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Method for manufacturing a wall by stacking plaster blocks, and plaster block for use with such method.

The invention relates to a method for manufacturing a wall by stacking plaster blocks, said blocks having a hollow shaped as an open channel extending vertically in the stacked position of the blocks, the hollows being in vertical communication with each other and a concrete mortar being poured in at least a portion of said channels, as known from French patent specification 883,536.

The application of massive plaster blocks for manufacturing non-supporting inner walls in a house is known. The important advantage of plaster blocks is that plastering of the ready wall is not necessary. The blocks have a great dimensional stability and are not subject to shrinking. Usually the stacked blocks are adhered to each other by an adhesive. The adhesive pressed outwards between the blocks, is removed by a pat. Further finishing is superfluous. Wall paper can be applied directly on the non-plastered wall. A disadvantage of massive plaster blocks for a wall is that the blocks cannot take up large weights and that as a consequence of the small density the sound insulating properties are rather bad. Despite of the fact that only the plastering of two surfaces of a brick work wall costs about the same as a ready wall made of plaster blocks, it is a consequence of these disadvantageous properties that the application of plaster block is mainly confined to non-supporting inner walls.

These disadvantages are not avoided by the application of the method disclosed in said French patent specification. The channels in which the concrete mortar is poured have a mutual distance and the intermediate portions of the wall are relatively weak and little sound insulating.

It is an object of the invention to avoid this disadvantage and to provide a method with which plaster blocks may be employed for supporting house-separating walls of considerable strength and satisfactory sound insulating properties.

According to the invention the method indicated in the preamble is characterized in that the hollows of all blocks are brought in communication with each other by the staggering stacking

of the blocks and concrete mortar is poured in the system of channels for forming a concrete skeleton extending over the entire wall.

5 Actually the plaster blocks have the function of a pre-fabricated plaster layer and of lost form for the concrete. The hardened concrete provides strength and mass to the wall. A wall manufactured in accordance with the invention is able to take up the weight of a number of floors. The density of concrete is about two and half times as big as the density of plaster so that also
10 the sound insulating properties of the wall according to the invention are considerably better than that of a wall made of conventional massive plaster blocks.

 It has appeared practically that the blocks have a height of 45 to 55 cm, preferably 50 cm, and that they have a substantially
15 square section having edge lengths of 25 to 35 cm, preferably 30 cm, and that the blocks with their longest dimension are positioned vertically.

 The weight of such a dry block of these dimensions is about 20 kg provided that the walls have a thickness of about 4 cm. As a
20 consequence the blocks may be stacked easily by hand. A normal height between two floors amounts to 2.50 m which can be obtained by five layers of blocks. The lowest layer should be adjusted vertically from the finished floor, for which small wedges may be used. As a consequence of the dimensional stability of the blocks
25 the next four layers may be stacked for forming a vertical wall without using threads, building means and other accessories. As the upper edge of five block layers stacked on each other is flat, the previously finished floor parts lie horizontally. No separate deckings are necessary. No scaffolds are used.

30 The plaster blocks can also be used for a lintel spanning a wall opening. Therefore plaster blocks are positioned above the upper horizontal member and/or underneath the lower horizontal member of window frames, the main direction of the hollow of these blocks being horizontal, whereas by the application of window-
35 shaped openings in the blocks having a vertical hollow and being adjacent to the horizontal blocks a communication between the vertical and horizontal hollows is made.

To reinforce the lintels made from plaster blocks an armouring can be applied in the horizontal hollows which are in communication with each other.

5 The invention also relates to a plaster block having a height of 45 to 55 cm, preferably 50 cm, and a substantially square section with an edge length of 25-35 cm, preferably 30 cm, a hollow in the block said hollow being open at two opposite ends and the length direction of the hollow extending parallel to the largest dimension of the block, the hollow widening somewhat from one end to the other end and the block narrowing somewhat in the same direction.

10 In connection with the widening of the hollow in one direction and the narrowing of the block in the same direction, the removing of the block from the mold by means of a stamp can take place without any problem.

15 The invention will now be elucidated with the aid of the drawings.

Figure 1 shows a perspective view of a plaster block in accordance with the invention.

20 Figure 2 shows a wall portion in cross-section manufactured by the method of the invention.

Figure 3 shows a perspective view of a wall portion manufactured by the method of the invention.

Figure 4 shows a perspective view of a detail of the wall.

25 Figure 5 shows a perspective view of another detail of the wall.

30 The plaster block indicated in fig. 1 has a square section and a height which is considerably larger than the length of the edge of the square. A hollow 1 extends in the height direction, said hollow being open at the upper and lower end. A wall of the block is provided with two tongues 2, whereas the opposite wall has two grooves 3. The upper face is provided with a rebate 4 in the two walls which are not provided with the tongues 2 and the grooves 3, whereas the lower face in the corresponding walls is provided with a rebate 5.

35 The position of the rebates 4 and 5 is such that in stacking the blocks each rebate in the lower face of a block is filled with

a protruding portion in the upper face of a block positioned thereunder.

5 The preference dimensions of the block are: height: about 50 cm, length and width: about 30 cm; length and width of the hollow 1: about 22 cm; minimal thickness of the wall: about 4 cm; protruding length of the tongue: about 1.2 cm. The weight of such a block in dry condition amounts to about 20 kg.

10 As appears from fig. 2 and 3 the blocks, with their largest dimension vertical, are stacked in a stretching bond, by which the hollows of the blocks are in communication with each other. An adhesive is previously smeared on the lower and upper faces and on the side faces provided with tongues and grooves of the blocks. Obviously one has taken care that the tongues of one block penetrates into the grooves of a next block. Superfluous adhesive flows outwards and into a recessed portion 6 of the blocks between the tongues and between the grooves. The adhesive flown outwards is later on removed by a pat.

20 Lintels 7 may be made with horizontally positioned blocks according to the invention at the lower and the upper side of windows or other wall openings. The hollows of these lintels must be brought in communication with the hollows of the vertically stacked blocks. Therefor a window-shaped opening 8 is sawn into vertical blocks adjacent the lintels. An armouring 9 can be positioned into each lintel.

25 Nowadays the standard height between floors amounts to about 2.50 m. This height can be obtained by stacking five layers of plaster blocks. Only the lowest layer should be adjusted vertically (e.g. with the aid of wedges). The blocks have such a dimensional stability that the layers 2, 3, 4, and 5 need not be adjusted with accessories such as threads and building profiles.

30 After the wall made of plaster blocks is ready the hollows are filled with a liquid concrete mortar consisting of commercially available concrete with added superplasticizer (about 1 tot 1.5 % of the cement content of the concrete). As all hollows are in communication with each other, the hardened concrete will form a skeleton of horizontally as well as vertically connected concrete portions. This skeleton provides strength and mass to the wall.

For the concrete wall the plaster blocks are a lost form shaped as a prefabricated plaster layer.

As a consequence of the mass of the wall, the wall has sufficient sound insulating properties to serve as a house separating wall. In addition the wall is strong enough to take up the weight of a number (e.g. 6 or more) floors. Therefore the wall is suitable as a house separating supporting wall, needing no plaster layer, which results in a considerable saving. The tongues 2 of a block penetrate into the grooves 3 of a next block and the cooperating rebates 5 and protruding portions at the upper and lower face of the blocks form a good sealing against sound leaks. In addition they guarantee the centering of the blocks with respect to each other.

It is possible to apply lines and conduits through the hollows connected with each other. To this end also slots could be milled in the rather soft plaster.

As the upper edge of five layers of blocks stacked on each other is flat, the previously finished floors lie horizontally. No separate deckings are necessary.

The blocks according to the invention can also be used for making a chimney. Therefore they are stacked on each other in a non-staggering way and in the channel formed by the hollows, a sleeve is applied. To get a proper appearance the tongues have to be removed from the chimney blocks whereas the grooves 3 have to be made flat.

An important advantage is that the blocks are stacked by hand and that for normal heights between the floors (2.50 m) no scaffold is necessary. The blocks are made in a mold. To loose the blocks easily from the mold with the aid of a stamp, they are a little wider at the upper than at the lower side, whereas the hollows is a little narrower at the upper side than at the lower side.

It is easy to saw the blocks so that it is no problem to make them to inclined roof blocks.

The application of massive plaster blocks for inner walls is known. These massive plaster blocks can be used for the inner wall of cavity walls. The invention provides the possibility to make supporting house separating walls from plaster blocks so that

actually all walls of a house or building may consist of plaster. The rather expensive plaster layers can be completely avoided which results in considerable savings.

C L A I M S

1. Method for manufacturing a wall by stacking plaster blocks having a hollow shaped as an open channel extending vertically in the stacked position of the blocks, said hollows being in vertical communication with each other and a concrete mortar being poured in at least a portion of said channels, characterized in that the hollows of all blocks are brought in communication with each other by the staggering stacking of the blocks and that concrete mortar is poured in this system of channels to form a concrete skeleton extending over the entire wall.

2. Method according to claim 1, characterized in that the height of the blocks amounts to 45-55 cm, preferably to 50 cm, and that the blocks have a substantially square section with an edge length of 25-35 cm, preferably 30 cm, and that the longest dimension of the blocks is positioned vertically.

3. Method according to claim 1 or 2, characterized in that plaster blocks are disposed above the upper horizontal member and/or underneath the lower horizontal member of window frames, the main direction of the hollows of these blocks extending horizontally and that by the application of window-shaped openings in the blocks having a vertical hollow and being adjacent to the horizontal blocks, the vertical and horizontal hollows are brought in communication with each other.

4. Plaster block, characterized in that the height of the block amounts to 45-55 cm, preferably 50 cm, that it has a substantially square cross-section with an edge length of 25-35 cm, preferably 30 cm, that the block includes a hollow open at two opposite ends and the length direction of that hollow being parallel to the largest dimension of the block, and that the hollow widens from one end to the other end and the block narrows in the same direction.

fig-1

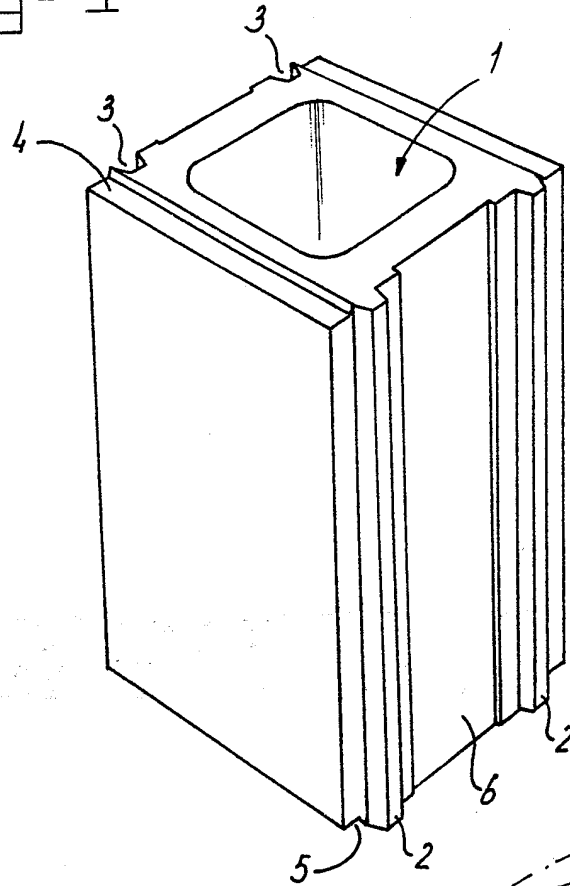


fig-3

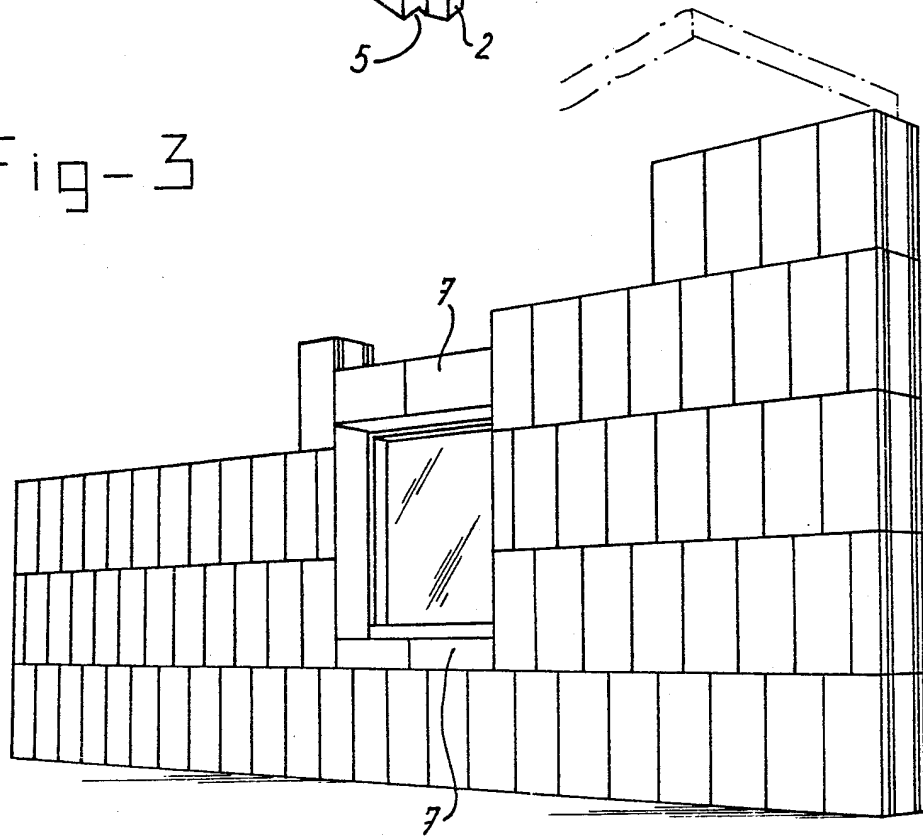


fig-2

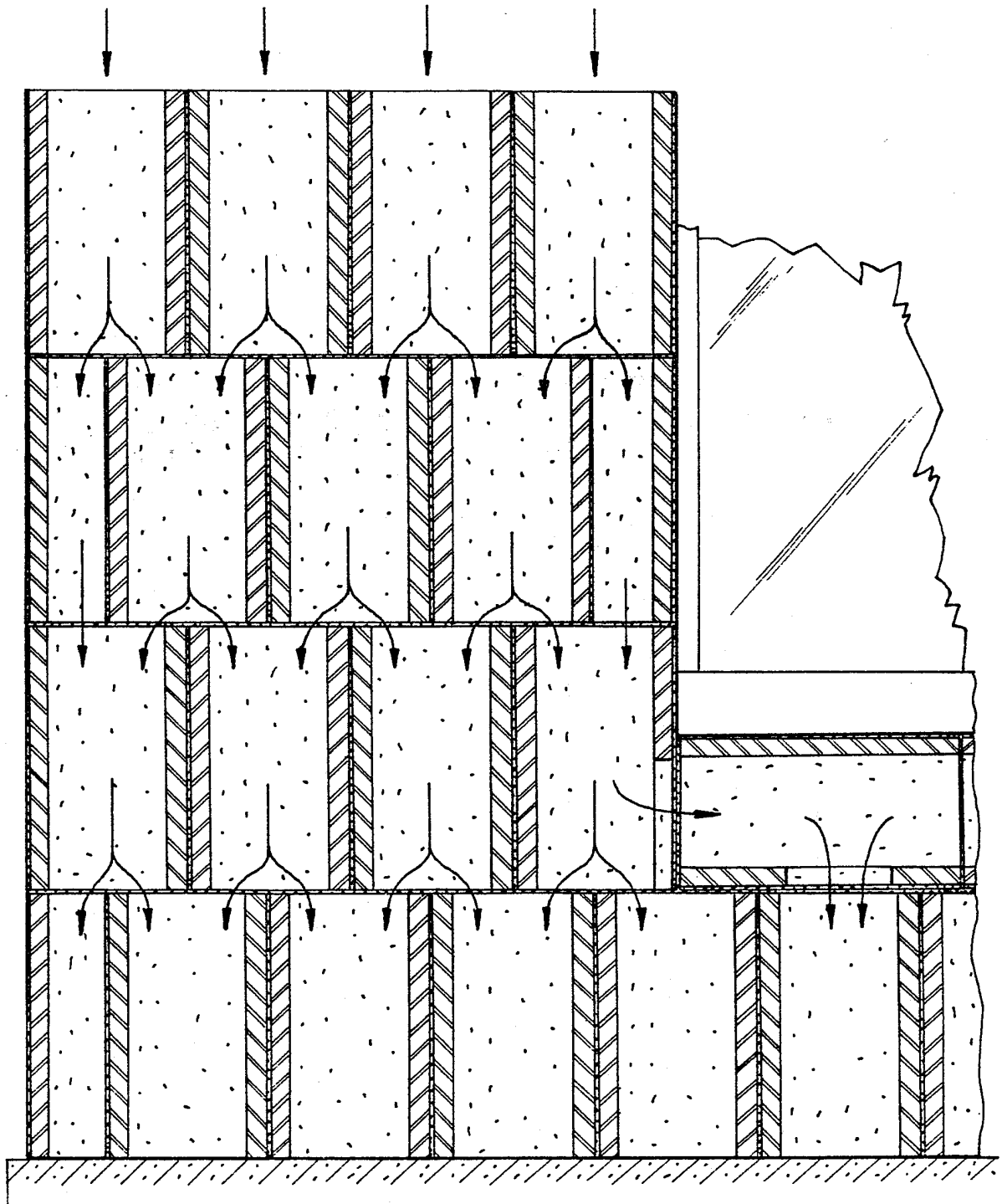


fig-4

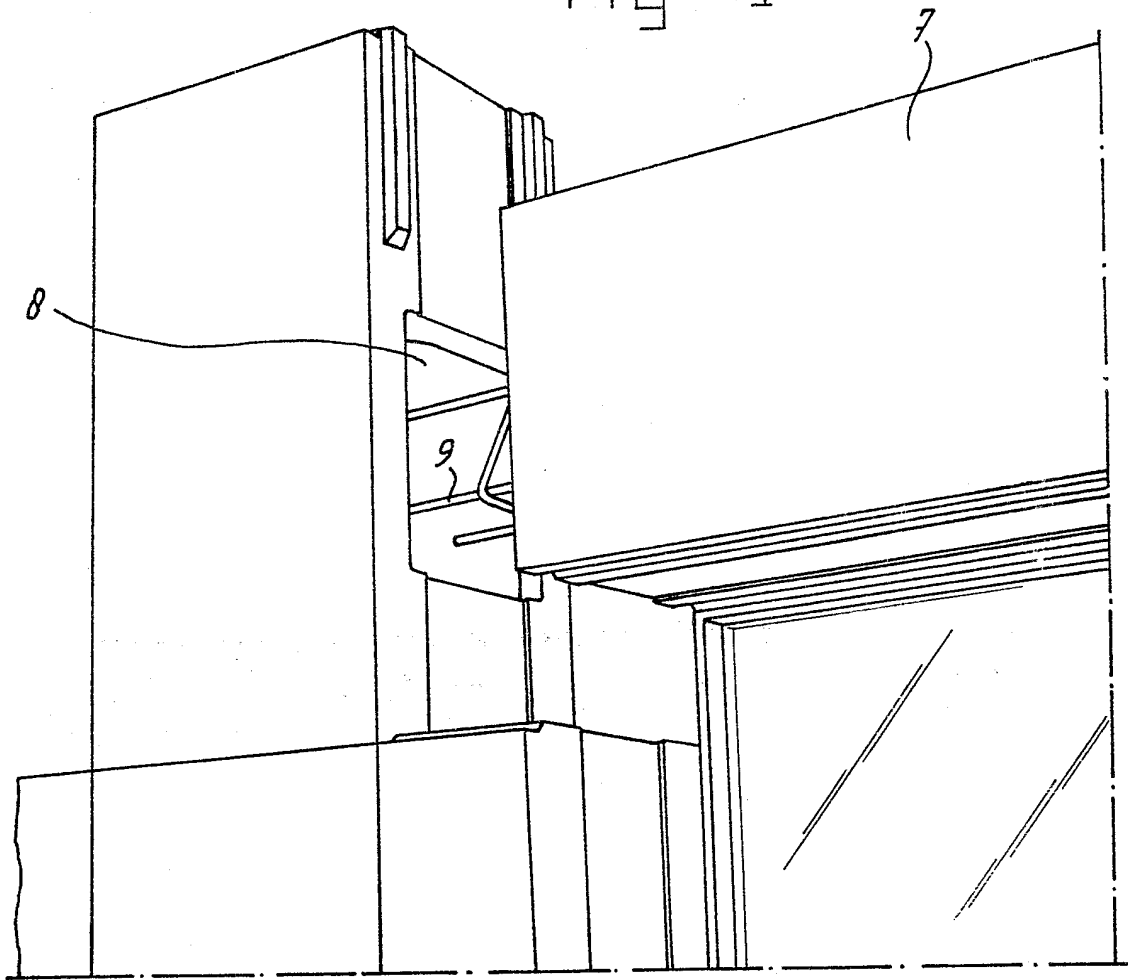
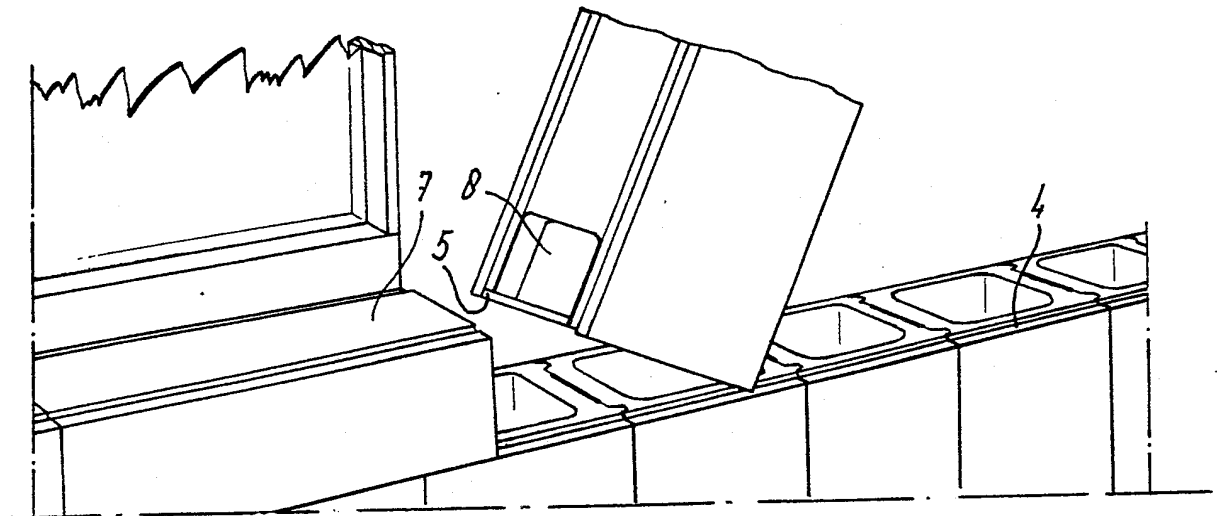


fig-5





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EUROPEAN SEARCH REPORT

0115886

Application number

EP 84 20 0071

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
D, X	FR-A- 883 536 (LEFEBVRE) * Page 1, lines 39-58; page 2, lines 14-19, 29-48; figures *	1, 2	E 04 C 1/08 E 04 C 1/10 E 04 B 2/18 E 04 B 2/26 E 04 C 1/40
A	DE-C- 917 568 (MELCHER) * Page 2, lines 47-49, 58-61, 65-68; figures * -----	3	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			E 04 B E 04 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 09-05-1984	Examiner VANDEVONDELE J.P.H.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	